[SWAPNIL TANEJA](http://cseweb.ucsd.edu/~swtaneja/)

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Education

**UC San Diego** – MS in Computer Science, (Sep ‘16 – Jun ‘18)

* Courses - Algorithms, Database Systems (Relational and XML), ML, Neural Networks, Advanced Analytics
* Tata Scholar–Awarded Scholarship for higher education among 50000 applicants in 2016.

**Indian Institute of Technology, Roorkee** - B. Tech, Electrical Engineering, (**CGPA – 8.8/10**) (Jul ‘10 – May ‘14)

* Courses – Data Structures and Algorithms, Discrete Structures, Image Processing, Cryptography
* Secured JEE (Joint Entrance Examination) Rank – 1601 among 460,000 candidates in 2010

Work Experience

**Oracle, Software Developer** (Jun ‘14 – Aug ‘16)

* Enhanced the automation framework, FA Provisioning, by merging similar procedures & removing redundancies– **ANT, Java**

Impact: Improved running time of provisioning framework by 20%.

* Built a tool called **Log Miner** to predict the cause of logged errors using Machine Learning algorithms. Got featured in Oracle Social Network for leveraging IEEE research – **Java, KNN** and **decision trees**.

Impact: Achieved an **accuracy of 90%,** significantly reducing the time for parsing logs and debugging.

* Wrote Life Cycle Management Read APIs using Introspection and Topology manager APIs - **Java**

Impact: Used by Patching, Upgrade and E2E automation teams.

**Hewlett Packard Education Services, Brand Ambassador, Intern**  (Jun ‘13 - Jul ‘13 & May ‘12 - Jun ‘12)

* Developed a website prototype for airline reservation. The task was to implement and test a scheduler for flights from different aerodromes preventing clashes - **Asp.Net, C#, SQL Server**
* Built a computer controlled robot with an ability to never fall off the table - **Atmega 16 AVR, IR Sensors**.

Impact: Solved the problem of limiting the bot within the boundaries and prevention from collisions and falling.

Technical Skills

**Languages/Framework** - Java, C++, Python, MySQL, Android, Tensorflow(tf),XML, HTML, CSS, Junit, C#

**Platform/Software/Tools** – Linux, Matlab,Antlr4, SQL Server, Android Studio, ANT, Gradle, OpenCV, Git

Projects and Research

**Capacitive fabric touch controlled Sphero SPRK+ – Healthcare Robotics** (June ‘17)

* Built a system to assist development of infants with hardware restrictions. [Demo] [Demo] [Report] [Code]

**Branch Predictor – Computer Architecture** (June ‘17)

* Created a Tournament Predictor with competing perceptron and local predictors.

Impact: Achieved 96% prediction accuracy and secured 7th rank among 130 in the class.

**Portability Analysis, Text to image Synthesis using GAN** (March ‘17)

* Used a GAN model to generate flower images from Flower Dataset & number images from MNIST & hand-crafted Dataset – **Python, tf .** Tested our hypothesis that GAN is generalizable and portable to other datasets. [[Report](https://github.com/tswapnil/Resume/blob/master/text-image-synthesis.pdf)]

**Improving Recall using features of CNN** (March ’17)

* Improved Recall of image similarity search using internal representations of CNNs-**Python, Matlab.** [[Survey](https://github.com/tswapnil/Resume/blob/master/survey-improving-recall%20.pdf)]

Impact: Improved the average recall from 0.56 to 0.79 using CNN features.

**XQuery Processor** (March ’17)

* Created and optimized XQuery Processor for executing Xpath 2.0 expressions. – **Antlr 4, Java, XML** [[Link](https://github.com/tswapnil/XQuery-Processor)]

**Generating Music using RNNs, Transfer Learning using VGG16 – CNN** (Feb ‘17)

* Generated melodious music on an RNN model trained on text in ABC notation-**Python** [[Report](https://github.com/tswapnil/Resume/blob/master/generating%20music.pdf)]
* Trained just the last softmax layer on Caltech 256 and utilized the existing VGG16 model parameters. [[Report](https://github.com/tswapnil/Resume/blob/master/transfer%20learning%20vgg16.pdf)]

**Android Applications** (Dec ‘16)

* Created the following Android apps and optimized the speed of background tasks making the interface more User friendly and Interactive.

- Weather App: to display weather forecast for preferred location using Udacity API [[Link](https://github.com/tswapnil/TheSunApp)]

- Hydration Reminder: to promote timely drinking of water by notifying user every 30 min. while charging. [[Link](https://github.com/tswapnil/HydrationReminderApp)]

- Music Visualizer: to display the higher, middle and lower range of frequencies of a song. [[Link](https://github.com/tswapnil/VisualizerApp)]

**Designing & Building Humanoid Robot (Bachelor’s Thesis)** (Aug ‘13- Mar ‘14)

* Built a humanoid robot having – Locomotion on Wheels, Hand Shake and Face Tracking –DC Motors (wheels) and Servo Motors (face). **Haar Cascade Classifiers (Open CV), Arduino Uno – Atmega 16** **AVR**. [[Report](https://github.com/tswapnil/BTech-Project/blob/master/Final_Report_BTP.pdf)] [[Videos](https://www.youtube.com/watch?v=rnBkGbj87uc)]

Impact: Achieved a 95% facial distinction while ensuring security of the lab.

**One Eyed Robot, Tech Fest Shristi**  (Jul ‘13 - Aug ‘13)

* Implemented facial recognition for passersby on a Webcam mounted on two servo motors tracking the face of human. Used **OpenCV** and **Arduino Uno** for controlled motion of webcam in the 3 degrees of freedom.